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Case No.: 57630US004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: SCHUKAR, GARY W.
Application No.: 10/797758 Confirmation No.: 4235
Filed: March 9, 2004 Group Art Unit 3729
Title: METHOD FOR CONVERTING A FUEL CELL MEMBRANE WEB TO
PRECISELY POSITIONED MEMBRANE SHEETS

SECOND AMENDED BRIEF ON APPEAL

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<p>CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR § 1.8(a)]</p> <p>I hereby certify that this correspondence is being:</p> <p><input type="checkbox"/> transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at 571-273-8300.</p> <p><input checked="" type="checkbox"/> transmitted to United States Patent and Trademark Office on the date shown below via the Office electronic filing system.</p> <p><i>January 21, 2009</i> <i>Phyllis J. Boettcher</i> Date: January 21, 2009 Signed by: Phyllis J. Boettcher</p>

Dear Sir:

This is an appeal from the Office Action mailed on May 31, 2007, finally rejecting claims 1-17. In the second Notification of Non-Compliant Appeal Brief, mailed December 23, 2008, the Examiner requires that this cover sheet state:

"the Appeal Brief in response to the Final Office Action⁹ (filed on 5/31/07), which is an exact rejection of the First Office Action (filed on 9/28/06)."

Fees

- ☐ Any required fee under 37 CFR § 41.20(b)(2) will be made at the time of submission via EFS-Web. In the event fees are not or cannot be paid at the time of EFS-Web submission, please charge any fees under 37 CFR § 1.17 which may be required to Deposit Account No. 13-3723.
- ☐ Please charge any fees under 37 CFR §§ 37 CFR § 41.20(b)(2)1.16 and 1.17 which may be required to Deposit Account No. 13-3723. (One copy of this sheet marked duplicate is enclosed.)
- ☒ Please charge any additional fees associated with the prosecution of this application to Deposit Account No. 13-3723. This authorization includes the fee for any necessary extension of time under 37 CFR § 1.136(a). To the extent any such extension should become necessary, it is hereby requested.
- ☒ Please credit any overpayment to the same deposit account.

This Second Amended Brief on Appeal follows a first Notification of Non-Compliant Appeal Brief mailed August 29, 2008, and a second Notification of Non-Compliant Appeal Brief mailed December 23, 2008.

REAL PARTY IN INTEREST

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

STATUS OF CLAIMS

Claims 1-17 are pending. Claims 18-35 are canceled. Claims 1-17 stand rejected. Claims 1-17 are the subject of the present Appeal.

STATUS OF AMENDMENTS

No amendments have been filed after the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

As recited in claim 1, all of the claims at issue concern methods of automatically converting a web of a thin patterned catalyst-coated membrane (e.g., web 32 in Figs. 2-6) to separate membrane sheets for fuel cell assembly (See Specification at, e.g., p. 4, ln. 29 to p. 5, ln. 32), a first side of the membrane web coated with an anode catalyst and a second side of the membrane web coated with a cathode catalyst, (See Specification at, e.g., p. 5, lns. 21-32) the method comprising:

transporting, with use of a movable vacuum (e.g., vacuum chuck 42 in Fig. 2), an end portion of the membrane web from a first location (e.g., staging station 50 in Figs. 2-6), to a second location (e.g., positioning station 60 in Figs. 2-6);

securing, with use of respective first and second vacuums (e.g., first vacuum 52 in Fig. 2 and second vacuum 62 in Fig. 2) at the first and second locations and after removal of the movable vacuum, the end portion of the membrane web at the first and second locations;

cutting the membrane web (e.g., with cutter 73 in Figs. 2-6) within a gap (e.g., gap 34 in Figs. 2-6) defined between a single catalyst pattern of the membrane web end portion and an adjacent catalyst pattern to produce a membrane sheet; and

positioning the membrane sheet to a desired orientation to facilitate subsequent processing of the membrane sheet (See Specification at, e.g., p. 13, ln. 29 to p. 14, ln. 5).

Claims 2-17 all depend from claim 1.

Claim 4 and claims depending therefrom (claims 5 and 6) additionally recites the step of detecting advancement of the single catalyst pattern to the second location (See Specification at, e.g., p. 9, lns. 22-30).

Claim 5 additionally recites that the advancement of the single catalyst pattern is detected optically (See Specification at, e.g., p. 9, lns. 22-30).

Claim 7 additionally recites that the step of positioning the membrane sheet comprises optically detecting that the membrane sheet is positioned to the desired orientation (See Specification at, e.g., p. 10, ln. 21 to p. 11, ln. 4).

Claim 8 additionally recites that the step of positioning the membrane sheet comprises detecting, via camera detection, that the membrane sheet is positioned to the desired orientation (See Specification at, e.g., p. 10, ln. 21 to p. 11, ln. 4).

Claim 9 and claims depending therefrom (claims 10 and 11) additionally recite that the step of positioning the membrane sheet comprises moving the membrane sheet axially with respect to an x-axis and a y-axis, and rotationally about a z-axis to position the membrane sheet to the desired orientation (See Specification at, e.g., p. 10, ln. 14 to p. 11, ln. 28).

Claim 12 and claims depending therefrom (claims 13 and 14) additionally recite the step of automatically inspecting the membrane web to detect completeness of membrane patterns (See Specification at, e.g., p. 11, ln. 29 to p. 12, ln. 7).

Claim 15 and claims depending therefrom (claims 16 and 17) additionally recite the step of automatically inspecting one or both of a size and a quality of membrane patterns (See Specification at, e.g., p. 11, ln. 29 to p. 12, ln. 7).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection

Claims 1-4, 6 and 9 stand rejected under 35 USC § 102(b) as purportedly anticipated by U.S. Pat. No. 5,437,960 (Nagate).

Second Ground of Rejection

Claims 5, 7, 8 and 10-17 stand rejected under 35 USC § 103(a) as purportedly unpatentable over Nagate in view of U.S. Pat. No. 6,951,596 (Green).

ARGUMENT

First Ground of Rejection

Claims 1-4, 6 and 9 stand rejected under 35 USC § 102(b) as purportedly anticipated by U.S. Pat. No. 5,437,960 (Nagate).

It is axiomatic that, in order to anticipate a claim, a reference must teach each and every element as set forth in that claim. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)(cited at MPEP § 2131). In the present case, no anticipation has been established because the cited reference fails to teach or suggest claim limitations recited in the present claims.

The present claims each concern a method which includes a step of “securing, with use of respective first and second vacuums at the first and second locations and after removal of the movable vacuum, the end portion of the membrane web at the first and second locations”. (Claim 1). As noted above, exemplary first and second vacuums 52, 62 are depicted in Fig. 2 of the present application. Exemplary first and second vacuums are associated with staging station 50 and positioning station 60 depicted in Figs. 2-6 of the present application. Each of the present §102 and §103 rejections depend on finding such teaching or suggestion in Nagate. (Sept. 28, 2006 Office Action at page 3, para. 4). However, no teaching or suggestion of the use of respective first and second vacuums at the first and second locations, as recited in claim 1 and all of the present claims, can be found in Nagate.

The May 31 Office Action asserts that “the features upon which applicant relies (i.e., first and second vacuum at the first and second location as items 52 & 62 of Figure) are not recited in the rejected claim.” (May 31 Office Action at para 3). Applicants respond that these limitations are plainly recited in Claim 1, where Claim 1 recites the steps of:

“transporting, with use of a movable vacuum, an end portion of the membrane web from a first location to a second location;”

and:

“securing, with use of respective first and second vacuums at the first and second locations and after removal of the movable vacuum, the end portion of the membrane web at the first and second locations”.

In response to Applicants assertion that Nagate does not teach the recited step of “securing, with use of respective first and second vacuums at the first and second locations and after removal of the movable vacuum, the end portion of the membrane web at the first and second locations, the May 31 Office Action asserts that “Nagate et al teach several vacuums (Fig. 1, items 15 & 19 (similar to 5); col.6 lines 22-27; col. 3, line 55; col. 7. lines 45-49) at several location to secure and process the membrane web.” (May 31 Office Action at para 3). However, it is sufficient to point out that none of these passages in Nagate disclose the simultaneous use of two vacuums in a single process step, much less their simultaneous use in a single process step in the manner prescribed by claim 1.

Applicants assert that the rejection of claims 1-4, 6 and 9 under 35 USC § 102(b) as purportedly anticipated by Nagate should be reversed.

Second Ground of Rejection

Claims 5, 7, 8 and 10-17 stand rejected under 35 USC § 103(a) as purportedly unpatentable over Nagate in view of U.S. Pat. No. 6,951,596 (Green).

It is axiomatic that, in order to establish a prima facie case of obviousness of a claim, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)(cited at MPEP § 2143.03). In the present case, no prima facie case of obviousness has been established because the cited references fail to teach or suggest claim limitations recited in the present claims.

As discussed in detail above in relation to the First Ground of Rejection, Nagate fails to teach or suggest critical limitations of the present claims with regard to the use of the first and second vacuums at the first and second locations. Green does not provide the teachings absent from Nagate with regard to these limitations, nor do any of the preceding Office Actions argue that Green provides the teachings absent from Nagate with regard to these limitations. Thus, no prima facie case of obviousness has been established because the cited references fail to teach or suggest claim limitations recited in the present claims.

Applicants assert that the rejection of claims 5, 7, 8 and 10-17 under 35 USC § 103(a) as purportedly unpatentable over Nagate in view of Green should be reversed.

CONCLUSION

Since each of the present §102 and §103 rejections depend on finding disclosures in Nagate of elements of the present claims which in fact not found in Nagate, applicants assert that all of the present rejections should be withdrawn.

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting this application. Please reverse the Examiner on all counts.

Respectfully submitted,

January 20, 2009

Date

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3M Innovative Properties Company
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CLAIMS APPENDIX

What is claimed is:

1. (Original) A method of automatically converting a web of a thin patterned catalyst-coated membrane to separate membrane sheets for fuel cell assembly, a first side of the membrane web coated with an anode catalyst and a second side of the membrane web coated with a cathode catalyst, the method comprising:
 - transporting, with use of a movable vacuum, an end portion of the membrane web from a first location to a second location;
 - securing, with use of respective first and second vacuums at the first and second locations and after removal of the movable vacuum, the end portion of the membrane web at the first and second locations;
 - cutting the membrane web within a gap defined between a single catalyst pattern of the membrane web end portion and an adjacent catalyst pattern to produce a membrane sheet; and
 - positioning the membrane sheet to a desired orientation to facilitate subsequent processing of the membrane sheet.
2. (Original) The method of claim 1, wherein the membrane is less than about two thousandths of an inch in thickness.
3. (Original) The method of claim 1, further comprising:
 - securing, with use of the first vacuum, the end portion of the membrane web at the first location;
 - moving the movable vacuum to the first location; and
 - activating the movable vacuum and removing the first vacuum to facilitate transport of the end portion of the membrane web by use of the movable vacuum.
4. (Original) The method of claim 1, further comprising detecting advancement of the single catalyst pattern to the second location.

5. (Original) The method of claim 4, wherein advancement of the single catalyst pattern is detected optically.
6. (Original) The method of claim 4, wherein advancement of the single catalyst pattern is detected by detecting the gap defined between the single catalyst pattern and the adjacent catalyst pattern.
7. (Original) The method of claim 1, wherein positioning the membrane sheet comprises optically detecting that the membrane sheet is positioned to the desired orientation.
8. (Original) The method of claim 1, wherein positioning the membrane sheet comprises detecting, via camera detection, that the membrane sheet is positioned to the desired orientation.
9. (Original) The method of claim 1, wherein positioning the membrane sheet comprises moving the membrane sheet axially with respect to an x-axis and a y-axis, and rotationally about a z-axis to position the membrane sheet to the desired orientation.
10. (Original) The method of claim 9, further comprising optically detecting that the membrane sheet is positioned to the desired x-axis, y-axis, and rotational orientation.
11. (Original) The method of claim 9, further comprising detecting, via camera detection, that the membrane sheet is positioned to the desired x-axis, y-axis, and rotational orientation.
12. (Original) The method of claim 1, further comprising automatically inspecting the membrane web to detect completeness of membrane patterns.
13. (Original) The method of claim 12, wherein automatically inspecting the membrane web comprises optically inspecting the membrane web.

14. (Original) The method of claim 12, wherein automatically inspecting the membrane web comprises inspecting the membrane web via camera inspection.

15. (Original) The method of claim 1, further comprising automatically inspecting one or both of a size and a quality of membrane patterns.

16. (Original) The method of claim 15, wherein automatically inspecting the membrane patterns comprises optically inspecting the membrane patterns.

17. (Original) The method of claim 15, wherein automatically inspecting the membrane patterns comprises inspecting the membrane patterns via camera inspection.

18-35. (Canceled)

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.